

M OANATOMY MID-TERM 1996/97

Name: KUDLEY KRISTIN M Time:

Test Key: DACEBECDEB	EEDACBBACD	CADECEBDAE	BAABAAABAA	ABEDEBDEBD
Items 1-50: 1234567890	1234567890	1234567890	1234567890	1234567890
Student's Answers: B*****	*****	**E*****	****B*****	*****B***

Test Key: CEABCDDBACB	DDDBCCBAAA	EDAACDBDEA	CDBABABBBAA	ABADDBBEDD
Items 51-100: 1234567890	1234567890	1234567890	1234567890	1234567890
Student's Answers: *****E**D*	*****E****	*****	*****B****	B*****

BONUSED QUESTIONS = 35,65

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NAME: Kristen

## MICROANATOMY MIDTERM EXAM

January 23, 1997

### SELECT THE SINGLE BEST ANSWER:

1. Clathrin-coated vesicles are involved in...
  - A. pinocytosis.
  - ☒ B. receptor mediated endocytosis.
  - C. lysosomal transport vesicle recycling.
  - D. All of the above.
  - E. None of the above.
2. A voltage-gated ion channel is best described as a \_\_\_\_\_.
  - ☒ A. transmembrane protein.
  - B. peripheral protein.
  - C. lipoprotein.
  - D. glycoprotein.
3. Proteins synthesized on polysomes in the soluble cytoplasm include all BUT:
  - ☒ A. cytosolic proteins.
  - ☒ B. mitochondrial proteins.
  - ☒ C. lysosomal proteins.
  - ☒ D. nuclear proteins.
  - ☒ E. peroxisomal proteins.
4. Tubulin is associated in some important way with each of the following EXCEPT:
  - ☒ A. cilia.
  - ☒ B. mitotic spindle.
  - C. centrioles.
  - ☒ D. microtubules.
  - ☒ E. rough endoplasmic reticulum.
5. Which of the following is NOT TRUE about the cell nucleus?
  - A. It is surrounded by a double membrane called the nuclear envelope.
  - ☒ B. All cells in the human body have one or more.
  - ☒ C. There are large pores in the nuclear envelope.
  - ☒ D. The DNA is differentially packed relating to different rates of protein synthesis.
  - E. Ribosomal RNA is synthesized in the nucleolus.

**SELECT THE SINGLE BEST ANSWER:**

6. The structural proteins involved in the formation of the nuclear envelope are...
- A. centrioles.
  - B. kineticores.
  - C. histones.
  - D. dyneins.
  - ☒ E. lamins.
7. Key proteins involved in nucleosome packing are...
- A. tubulins.
  - B. lamins.
  - ☒ C. histones.
  - D. centrioles.
  - E. kinetochores.
8. Spindle fibers are attached to chromosomes by which of the following?
- A. Dyneins
  - B. Keratins
  - C. Lamins
  - ☒ D. Kinetochores
  - E. Centrioles
9. Which of the following is **NOT** a phase of the cell cycle for a normally dividing cell?
- A. G-1 Phase
  - B. S Phase
  - C. G-2 Phase
  - D. M Phase
  - ☒ E. G-0 Phase
10. DNA duplication occurs during...
- ☒ A. G-1 Phase.
  - ☒ B. S Phase.
  - C. G-2 Phase.
  - D. M Phase.
  - E. G-0 Phase.
11. Telophase is characterized by...
- ☒ A. disappearance of the nuclear membrane.
  - ☒ B. condensation of chromosomes.
  - ☒ C. kinetochore attachment to chromosomes.
  - ☒ D. chromosome alignment at an equatorial plate.
  - ☒ E. reformation of the nuclear envelope and nucleolus.

**MATCHING:** (Questions #12-16)

Match the cellular location (A-E) with the most appropriate substance, enzyme, or activity (#'s 12-16).

- ~~A.~~ Golgi
- ~~B.~~ Plasmalemma
- ~~C.~~ Peroxisomes
- ~~D.~~ Mitochondria
- ~~E.~~ Lysosome

- 12. E Acid Phosphatase
- 13. D Oxidative Phosphorylation
- 14. A Mannose 6-Phosphate Production
- 15. C Catalyase
- 16. B Membrane Glycoproteins

**SELECT THE SINGLE BEST ANSWER:**

- 17. Which of the following lists contains examples of each of the four basic tissue types?
  - ~~A.~~ Smooth muscle, blood, cardiac muscle, and skeletal muscle
  - B. Smooth muscle, mucoid tissue, endothelium, and axons of a peripheral nerve
  - ~~C.~~ Lining of blood vessels, simple tubular gland, cardiac muscle, and blood
  - ~~D.~~ Reticular tissue, fibrocartilage, Schwann cells of a peripheral nerve, and neurons.
  - ~~E.~~ Stratified squamous non-keratinizing epithelium, neurons in a ganglion, smooth muscle cells, and neurons in the central nervous system
- 18. When a gland is described as a compound acinar gland, it means that the gland...
  - A. has branched ducts.
  - ~~B.~~ consists of cells that liberate their secretory product into the blood.
  - ~~C.~~ contains secretory cells in a long narrow tube.
  - ~~D.~~ is present only in the parenchyma of an organ.
  - ~~E.~~ is always composed of stratified columnar epithelium.

**SELECT THE SINGLE BEST ANSWER:**

19. Stratified epithelia are named according to...
- ☒ A. the shape of the most basal cells.
  - ☐ B. the type of cell to cell association.
  - ☐ C. the shape of the most superficial cells.
  - ☐ D. A, B and C above are correct.
  - ☐ E. A and B above are correct.
20. The epithelial structure of the secretory region of sweat glands is...
- ☐ A. simple squamous.
  - ☐ B. stratified squamous non-keratinizing.
  - ☒ C. stratified squamous keratinizing.
  - ☐ D. simple cuboidal.
  - ☐ E. transitional.
21. The epithelium of the vagina and the esophagus is classified as...
- ☐ A. simple squamous.
  - ☐ B. stratified squamous keratinizing.
  - ☒ C. stratified squamous non-keratinizing.
  - ☐ D. simple cuboidal.
  - ☐ E. transitional.
22. Select the correct statement.
- ☒ A. A fibroblast may be considered a secretory cell.
  - ☐ B. Normally, there is no type III collagen present in areolar connective tissue.
  - ☒ C. Multilocular fat cells, fibroblasts, mast cells and macrophages may all be found in areolar connective tissue all over the body.
  - ☐ D. A ligament consists primarily of collagen type II.
  - ☐ E. None of the above are correct.
23. Select the correct statement.
- ☒ A. Basophils and mast cells are incapable of diapedesis.
  - ☐ B. In hypersensitive reactions, edema is responsible for the swelling of tissues due to release of the histamine from eosinophils in the area.
  - ☐ C. The immediate precursor to the mast cell is the basophil.
  - ☒ D. Mast cells can be classified as paracrine cells.
  - ☐ E. None of the above are correct.

**SELECT THE SINGLE BEST ANSWER:**

24. Select the correct statement.

- ☒ A. Under the stimulus of insulin, the fat cells break down and release lipids from white adipocytes.
- ☒ B. Brown fat cells do not use the lipoprotein lipase enzyme system to get lipid from chylomicrons into their cells.
- ☒ C. Multilocular adipocytes are frequently found in the bone marrow of 8-12 year old children.
- ☒ D. Under parasympathetic stimulation, epinephrine stimulates the release of lipids from the brown fat.
- ☒ E. None of the above are correct.

25. Select the correct statement(s).

- A. The basement membranes of osteocytes are rich in collagen type IV, laminin, fibronectin and heparin sulfate, which help attach the cell to the extracellular matrix.
- ☒ B. Reticulocytes are found scattered throughout the lymph node medullary sinuses.
- ☒ C. Pericytes are multipotential cells which may, on demand, differentiate into cartilage cells.
- D. Collagen formation is a very slow process which requires years to completely replace all the collagen fibers in gums and periodontal ligaments.
- ☒ E. All of the above are correct.

26. Select the correct statement(s).

- A. Activated integrin proteins on the surfaces of monocytes are responsible for tightly binding the cell on the endothelial cell surface inside a blood vessel.
- B. Shortly after surgery to remove breast cancer that has metastasized to the axillary lymph nodes, the upper extremity of a female patient will often temporarily enlarge due to edema.
- ☒ C. Oxytalan fibers are an extracellular fiber found in the skin as part of the elastic fiber system.
- D. A person suffering from leukocyte adhesion deficiency would not be able to efficiently extravasate leukocytes from his blood vessels.
- ☒ E. All of the above are correct.

**SELECT THE SINGLE BEST ANSWER:**

27. Select the **INCORRECT** statement.

- A. The extracellular matrix of hyaline cartilage contains abundant collagen type II.
- B. Cartilage and bone matrix contain the same amount of proteoglycans.
- C. Proteoglycan aggregates are responsible for giving hyaline cartilage its characteristic high water content and its ability to act as a shock absorber.
- D. The presence of water loosely bound to the proteoglycans in cartilage permits the rapid diffusion of nutrients and wastes.
- E. Cartilage increases in size by intersitital and appositional growth in the fetus.

28. Select the **INCORRECT** statement.

- A. Elastic cartilage is found in the epiglottis and pinna of the ear.
- B. The perichondrium of the hyaline cartilage rings in the trachea is composed of dense irregular connective tissue.
- C. The suture line in the skull is a form of a fibrous, synarthrodial joint.
- D. The elastic fibers found in elastic cartilage do not contain the elastic microfibril component.
- E. Plasma cells are usually not found within hyaline cartilage matrix.

29. Select the **INCORRECT** statement.

- A. Fibrocartilage is found only in the intervertebral disc.
- B. Articular cartilage receives most of its nutrients from synovial fluid.
- C. Tropoelastin can be secreted by chondrocytes.
- D. The outer portion of an intervertebral disc consists of dense regular connective tissue.
- E. The hyaline cartilage of a knee joint is reinforced with collagen type I fibers.

30. Select the correct statement.

- A. Hyaluronic acid is found only in cartilage matrix.
- B. There are no glycoproteins present within the normal hyaline cartilage matrix.
- C. The articulation between the ribs and the sternum can be considered a symphysis.
- D. The articulation between the tooth and mandible can be considered a diarthrodial joint.
- E. None of the above are correct.

**TRUE AND FALSE:**

**TRUE = A, FALSE = B**

31. ☒ Colchicine and vinblastine are excellent chemotherapeutic drugs because they bind to the intermediate filaments and prevent the subunits from binding together.
32. ☒ Heart muscle and neurons would be one of the least affected tissues of colchicine chemotherapy.
33. ☒ Red bone marrow could be considered either reticular tissue or hemopoietic tissue.
34. ☒ The cause of scurvy is the lack of vitamin C, which is used as a cofactor for procollagen peptidase activity which clips the extra tail off the procollagen molecule as it leaves the fibroblast/cyte.
35. ☒ Opsonin is an immunoglobulin found on macrophages and is used in one form of receptor mediated phagocytosis.
36. ☒ Anaphylactic shock can be prevented by the action of the eosinophils.
37. ☒ Spots of blood (petechiae) on the lower extremity in scurvy is due to poor collagen formation in the vessels.
38. ☒ The epiphyseal plate can be considered an amphiarthrodial joint.
39. ☒ The administration of glucosamine sulfate (an intermediate in proteoglycan synthesis) may promote the production of proteoglycans in a person suffering from osteoarthritis.
40. ☒ Rheumatoid arthritis is an autoimmune disease which attacks the synovial membrane of joints.
41. ☒ The central canal carries the blood vessel which supplies all the osteocytes of a single osteon.
42. ☒ Nutrients reach the outermost osteocytes in the osteon by flowing through small blood vessels in the canaliculi.



**SELECT THE SINGLE BEST ANSWER:**

43. Select the **INCORRECT** statement.

- ☒ A. Endochondral ossification only occurs within a hyaline cartilage model.
- ☒ B. A forming osteon is an example of "metabolic bone".
- ☒ C. The bone first laid down during endochondral and intramembranous ossification is woven.
- ☒ D. Interstitial lamellae and mature osteons are examples of "structural bone".
- ☐ E. Only endochondral ossification and intramembranous ossification must occur to achieve proper modeling of a long bone like the femur.

44. Select the **INCORRECT** statement.

- ☒ A. Trabecular packets are formed by remodeling of spongy bone.
- ☒ B. The function of epiphyseal plates is to lengthen the long bones of the body.
- ☒ C. Inner circumferential lamellae are formed by the endosteum.
- ☐ D. Approximately 95% of the skeletal mass of an individual turns over during the course of a year.
- ☒ E. It takes less time for spongy bone to remodel than compact bone.

45. Select the **INCORRECT** statement.

- ☒ A. Cartilage will form in the callus of a large complete fracture due to lower oxygen content in the proliferating tissues farther away from the blood supply.
- ☒ B. An adult suffering from an over-secretion of growth hormone (somatotropin) has acromegaly resulting in thickened facial bones and enlarged hands and feet.
- ☒ C. Intramembranous ossification occurs on the bone fragments immediately adjacent to the break in a fractured bone.
- ☒ D. Union in a compound complete fracture occurs when the calluses formed by the distal and proximal fragments meet and join in the middle of the gap.
- ☐ E. Osteoprogenitor cells only arise from the periosteum during fracture repair.

**SELECT THE SINGLE BEST ANSWER:**

46. The source of energy for the initial contraction of skeletal muscle is derived from...
- ☒ A. the glycolytic activity of myosin.
  - ☐ B. the adenosinetriphosphatase activity of myosin.
  - ☐ C. release of energy due to cyclical conformational changes in actin.
  - ☐ D. adenosinetriphosphatase activity of tropomyosin.
  - ☐ E. A and B, only.
47. A cytological feature common to cardiac muscle cells, myofibroblasts, and cleavage furrows is...
- ☒ A. sacroplasmic reticulum.
  - ☐ B. thick filaments.
  - ☐ C. triads.
  - ☐ D. actin filaments.
  - ☐ E. basement membrane.
48. In a skeletal muscle cell, the sarcoplasmic reticulum...
- ☐ A. occurs in the form of diads.
  - ☐ B. conducts the action potential to the interior of the cell.
  - ☐ C. is most obvious during cell division.
  - ☐ D. is directly continuous with the sarcolemma.
  - ☒ E. is able to release and resequester calcium.
49. In cardiac muscle, the release of calcium from the sarcoplasmic reticulum is triggered by which of the following?
- ☒ A. Inositol 1,4,5-triphosphate
  - ☐ B. Calcium influx during the muscle action potential
  - ☐ C. Acetylcholine
  - ☐ D. ATP
  - ☐ E. Creatine

**MATCHING:**      **Questions # 50-59**

Match the structure (A-E) with the most appropriate description (#'s 50-54).

- A. Interstitial lamellae
- B. Cement line
- ~~C.~~ Osteoid
- ~~D.~~ Gaps between tropocollagen molecules in type I collagen
- ~~E.~~ osteoclast

- 50. D      thought to initiate mineralization of bone matrix.
- 51. C      unmineralized bone matrix laid down by osteoblasts.
- 52. B      monocyte is immediate precursor.
- 53. A      heavily mineralized.
- 54. E      outer limit of osteon.

Match the substance (A-E) with the disease or process most closely associated (#'s 55-59).

- ~~A.~~ Parathyroid hormone
- ~~B.~~ Calcitonin
- ~~C.~~ Lack of vitamin D
- D. Greater than normal amount of vitamin E
- E. None of the above

- 55. C      Primary mineralization prolonged
- 56. B      Early closure of the epiphyseal plate
- 57. D      This substance targets cells containing alkaline phosphatase and make them more active.
- 58. A      Target cells of this substance contain carbonic anhydrase
- 59. E      Causes osteomalacia

**SINGLE BEST ANSWER:**

60. Each of the following matched pairs is correct **EXCEPT**.

- A. Peyer's patch nodules - transient
- B. Red pulp - thymus
- C. Macrophages - lymph nodes
- D. Hassall's corpuscles - thymus
- E. Sheathed arterioles - spleen

61. Select the correct statement. Palatine tonsils...

- A. are situated at the root of the tongue.
- B. are covered with ciliated pseudostratified columnar epithelium.
- C. filter lymph.
- D. have epithelially lined crypts and lymphoid follicles.
- E. are encapsulated lymphatic organs.

62. Abundant concentrations of B-lymphocytes would be found in all of the following locations **EXCEPT**:

- A. Stimulated Peyer's patches
- B. Germinal centers
- C. Peripheral splenic white pulp outside of PALS
- D. Paracortex of lymph node
- E. Stimulated lymphatic follicles

63. All of the following statements are true of the thymic cortex **EXCEPT**:

- A. It is the site of T-lymphocyte differentiation.
- B. It contains Hassall's corpuscles.
- C. The only circulatory vessels present are blood capillaries.
- D. Epithelial reticular cells are present.
- E. It is the site of the blood-thymus barrier.

64. Penicillar arteries are characteristic of...

- A. splenic white pulp.
- B. thymus.
- C. splenic red pulp.
- D. lymph node paracortex.
- E. Peyer's patches.

**SINGLE BEST ANSWER:**

65. Select the correct statement. Epithelial-reticular cells of the thymus...

- ☒ A. differentiate into white fat cells.
- ☐ B. line blood-filtering sinusoids.
- ☐ C. attach to one another via desmosomes.
- ☐ D. line the medullary cords.
- ☐ E. are derived from monocytes.

66. Select the correct statement. A germinal center...

- ☐ A. lacks mitotic figures.
- ☐ B. is lined by connective tissue septa.
- ☐ C. contains lymphoblasts and plasmablasts.
- ☐ D. is where T-lymphocytes mature.
- ☒ E. has high endothelial venules.

67. Plasma cells originate from the differentiation of ...

- ☐ A. monocytes.
- ☒ B. antigen-stimulated B-lymphocytes.
- ☐ C. antigen-stimulated T-lymphocytes.
- ☐ D. antigen-presenting cells.
- ☐ E. macrophages.

68. The normal functions of the adult spleen include all **EXCEPT**...

- ☒ A. maturation of red blood cells.
- ☐ B. destruction of old red blood cells.
- ☐ C. filtration of the blood.
- ☐ D. antigen presentation.
- ☐ E. differentiation of B-lymphocytes.

69. Which one of the following pairs would be the most characteristic of the paracortex in the lymph node?

- ☒ A. T-lymphocytes and high endothelial venules
- ☐ B. B-lymphocytes and high endothelial venules
- ☐ C. T-lymphocytes and cords of Billroth
- ☐ D. Macrophages and plasma cells
- ☐ E. Germinal centers and high endothelial venules

**SINGLE BEST ANSWER:**

70. Which is **NOT** an antigen-presenting cell?

- ☒ A. Monocyte
- B. Macrophage
- C. B-lymphocyte
- D. Epithelial dendritic cell
- E. M-cell

71. Select the correct statement. Eosinophils...

- ☒ A. are related to mast cells.
- B. contain major basic protein in their primary granules.
- ☒ C. are more numerous than neutrophils.
- D. are readily identified by their multilobed nucleus.
- E. have a role in immune reactions against parasites.

72. Which one of the following characteristics is valid for the polychromatophilic erythroblast?

- ☒ A. Polyploid
- B. Eosinophilic cytoplasm with perinuclear halo
- ☒ C. Synthesis of histamine
- D. Cytoplasmic polychromasia
- E. No nucleus

73. In embryos, hematopoiesis first begins in the ...

- ☒ A. yolk sac.
- B. liver.
- C. spleen.
- D. bone marrow.
- E. all of the above.

74. The mononuclear-phagocyte system does **NOT** include...

- ☒ A. mast cell.
- B. Kupffer cells.
- C. osteoclasts.
- D. macrophages.
- E. microglia.

**SINGLE BEST ANSWER:**

75. Which is **NOT** true of basophils?

- ☒ A. They are less than 1% of leukocytes in circulating blood.
- ☐ B. They have larger granules that are fewer in number than eosinophils.
- ☐ C. They are equivalent to mast cells.
- ☒ D. They release histamine.
- ☐ E. They have IgE receptors on their surface.

76. The following sequential developmental pairs are correct **EXCEPT**:

- A. megakaryocytes - platelets
- B. orthochromatophilic erythroblast - reticulocyte
- ☒ C. activated B-lymphocyte - plasmablast
- ☐ D. BFU-erythroid - erythropoietin
- E. stab cell - neutrophil

77. Select the **INCORRECT** statement. Hematopoietic cords...

- ☒ A. are lined by adventitial cells.
- ☐ B. are underlined by a continuous basement membrane.
- ☐ C. are lined by endothelial cells that are active in endocytosis.
- ☒ D. contain hematopoietic islands.
- ☐ E. contain white fat cells.

78. Select the **INCORRECT** statement. Megakaryocytes are...

- A. multiploid.
- B. have platelet demarcation channels.
- ☒ C. give rise to platelets.
- ☐ D. give rise to promyelocytes.
- E. reside in red bone marrow.

79. Select the correct statement. Erythropoietin...

- ☒ A. is an enzyme produced in the heart that influences erythropoiesis.
- ☐ B. is an enzyme produced in the liver that influences erythropoiesis.
- ☐ C. is an enzyme produced in the kidney that influences granulopoiesis.
- ☐ D. is an enzyme produced in the kidney that influences hemaglobin affinity for oxygen.
- ☒ E. None of the above.

**SINGLE BEST ANSWER:**

80. Which statement is correct for Peyer's patches?
- A. ☒ M cells act as antigen-presenting cells.
  - B. ☐ Activated T-lymphocytes do not enter the circulation.
  - C. ☐ IgG is the main immunoglobulin secreted.
  - D. ☐ There is a connective tissue capsule.
  - E. ☐ None of the above is correct.
81. Which of the following blood cells exhibit phagocytosis for antigen-antibody complexes?
- A. ☐ Lymphocyte
  - B. ☐ Neutrophil
  - C. ☒ Eosinophil
  - D. ☐ Basophil
  - E. ☐ Monocyte
82. Which is **NOT** true of B-lymphocytes?
- A. ☒ They are usually fewer than T-lymphocytes in circulating blood.
  - B. ☒ They characteristically occupy the central regions of germinal centers.
  - C. ☒ They form plasma cells.
  - D. ☒ They are the chief constituent of the periarteriolar lymphatic sheath.
  - E. ☒ They divide in the bone marrow and in most peripheral lymphatic organs.

**TRUE OR FALSE:**      **A = TRUE,    B = FALSE**

83. The nucleolus is the site of messenger RNA synthesis.
84. Glycogen and lipid droplets are non-membrane encircled cell inclusions.
85. The phosphorylated carbohydrate responsible for directing proteins to the lysosomal compartment is glucose 6-phosphate.
86. The functions of the smooth endoplasmic reticulum include, but are not limited to, steroid hydroxylation and drug detoxification.



**TRUE OR FALSE:**

**A = TRUE, B = FALSE**

87. In a pure white muscle, such as the tail of a lobster, ATP production will occur principally via mitochondrial oxidative phosphorylation. *Red muscle*
88. The mode of secretion of a sebaceous gland is apocrine.
89. Gap junctions are involved in the transfer of electrical impulses in smooth muscle and cardiac muscle cells. *holocrine*
90. Epithelial tissue is embryologically derived from ectoderm, mesoderm, and endoderm.
91. The close association of the Zonula Occludens, the Zonula Adherens, and Desmosomes near the apical surface of epithelial cells is called the junctional complex.

**SINGLE BEST ANSWER:**

92. The action potential component of the nervous impulse is generated in...
- A. dendritic spines.
  - B. the axon hillock.
  - C. the axonal bouton.
  - D. Nissl bodies.
  - E. the synapse.
93. Which of the following statements concerning neuroglia is true?
- A. Neuroglia are more numerous than neurons.
  - B. Neuroglia do not proliferate in the adult nervous tissue.
  - C. Neuroglia are large cells compared to neurons.
  - D. Astroglia are the myelin-forming cells of the CNS.
  - E. Microglia are derived from neurons and therefore possess axonal processes.

**SINGLE BEST ANSWER:**

94. Nerve cell bodies can be seen microscopically...
- ☒ A. near the sense organs of skin.
  - ☒ B. in any cross section of a peripheral nerve.
  - ☒ C. only in the CNS (Central Nervous System).
  - ☒ D. in the CNS, autonomic ganglia, and spinal ganglia.
  - ☐ E. All of the above.
95. Unmyelinated axons of PNS (Peripheral Nervous System) are...
- ☒ A. naked neuronal processes devoid of any structural association with the glial cells.
  - ☒ B. axons of large diameters.
  - ☒ C. conduction fibers for tactile discrimination.
  - ☒ D. enclosed within the simple clefts of Schwann cells.
  - ☐ E. None of the above.
96. The connective tissue covering of the CNS include all of the following **EXCEPT:**
- ☐ A. Dura Mater -- Dense connective tissue that is continuous with the periosteum of the skull.
  - ☒ B. Epineurium -- Loose areolar connective tissue which lines each of the blood vessels.
  - ☒ C. Arachnoid -- Connective tissue containing collagen and elastic fibers covered by an epithelium.
  - ☒ D. Pia Mater -- Loose connective tissue which adheres closely to the contours of the brain.
  - ☐ E. Meninges constitute the connective tissue covering of the brain.
97. Surface specializations of neuronal dendrites designed to increase the area of synaptic contacts are known as...
- ☒ A. dendritic boutons.
  - ☒ B. dendritic spines.
  - ☐ C. dendritic nodes.
  - ☐ D. dendritic spuds.
  - ☐ E. None of the above.

**SINGLE BEST ANSWER:**

98. Which of the following is **NOT** a component of the blood/brain barrier?

- ☒ A. Capillary endothelial cells with "tight" junctions
- ☒ B. Pericytes
- ☒ C. Basement membranes of the capillary endothelial cells
- ☒ D. Foot-like processes of astroglia which abut against the basement membrane of the capillary endothelial cells.
- ☒ E. Myelin sheath

99. Which of the following is **NOT TRUE** of myelin?

- ☒ A. It is produced by Schwann cells.
- ☒ B. It serves as an electrical insulator responsible for the saltatory conduction of action potentials.
- ☒ C. It is produced by oligodendrocytes.
- ☒ D. It can replace neurons following neuronal damage.
- ☒ E. It functions to accelerate nerve conduction velocity.

100. Which of the following statements is **NOT TRUE** of the synaptic vesicles in the chemical synapse?

- ☒ A. Synaptic vesicles are membrane bound vesicles.
- ☒ B. Synaptic vesicles are released by the pre-synaptic terminals at the active zones.
- ☒ C. Synaptic vesicles are often associated with the presence of mitochondria and synaptic bars (membrane densities).
- ☒ D. Synaptic vesicles are transported from cell body to the synaptic terminals by the mechanism of neuronal impulses (action potentials).
- ☒ E. Membrane proteins of synaptic vesicles are recycled.